

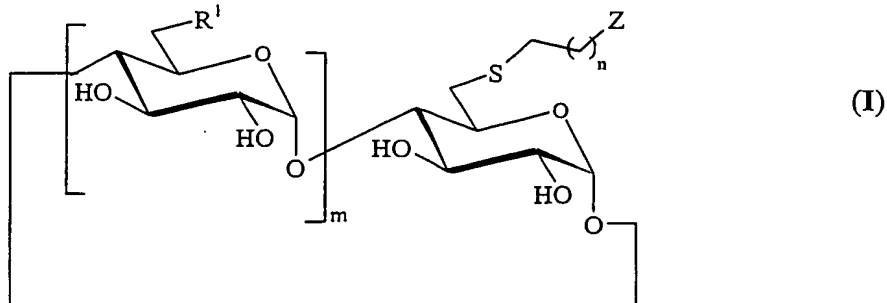
# AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

## LISTING OF CLAIMS:

1-29 (canceled)

30 (new) A process for the preparation of a compound of formula (I)



in which:

- n represents an integer from 1 to 6;
- m represents an integer equal to 5, 6 or 7;
- R¹ represents either an OH group or an -S-CH₂-(CH₂)ₙ-Z group, the R¹ groups all being identical;
- Z represents either:

- \* an NHX group,
- \* a quaternary ammonium group of the <sup>+</sup>NX<sub>3</sub> form,
- \* a  $\text{NX}-\text{C}(=\text{S})-\text{NHR}$  group,

X representing a hydrogen atom or an alkyl group comprising from 1 to 6 carbon atoms, and in particular being a methyl, ethyl, propyl or butyl group, and

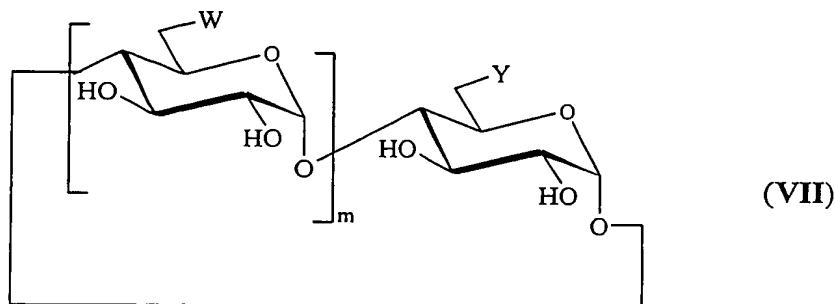
R representing a hydrogen atom, a linear or branched alkyl substituent with 1 to 12 carbon atoms, or an aromatic group such as the phenyl, benzyl or naphthyl group, or derivatives of these groups carrying substituents on the aromatic ring such as methyl, ethyl, chlorine, bromine, iodine, nitro, hydroxyl, methoxyl or acetamido substituents,

or R representing a biorecognition element such as an amino acid derivative, a peptide, a monosaccharide, an oligosaccharide, a multiplication element with several branchings comprising glucidic groups which can be

identical or different, or a visualization probe or fluorescent or radioactive detection probe,

said process being characterized in that it comprises the following stages:

– the reaction of a compound selectively or totally halogenated in primary alcohol position, of the following formula (VII):



$m$  being as defined above,

$W$  representing an OH group or a Y group, the  $W$  groups all being identical,

and  $Y$  representing a halogen atom chosen from the group constituted by chlorine, bromine, iodine, and preferably being bromine or iodine,

with an  $\omega$ -aminoalkanethiol of the following formula (VIII):



said  $\omega$ -aminoalkanethiol optionally being N-alkylated,

or the corresponding salt of the following formula (VIII-a):



or a tetraalkylammonium salt of the following formula (VIII-b):

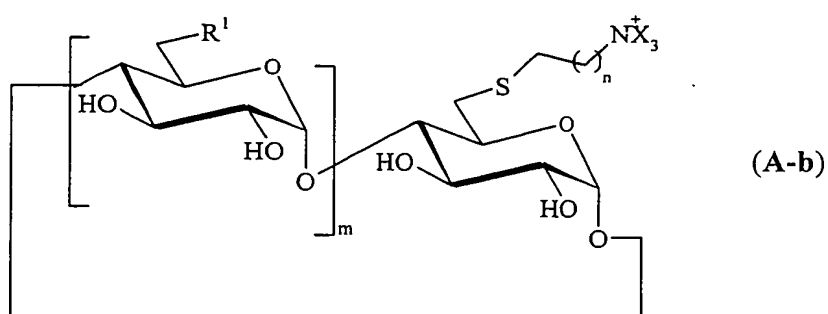
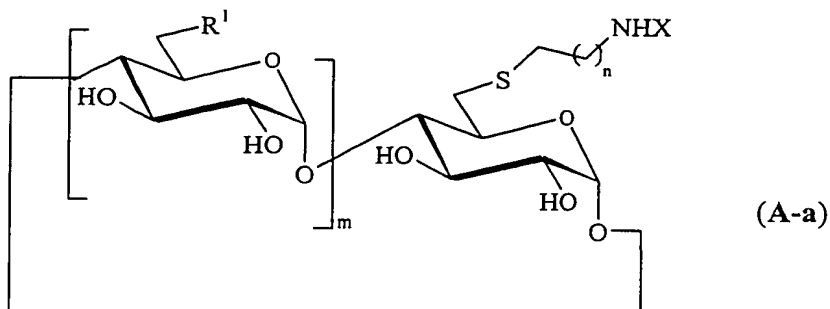


said salt being associated with a halide counter ion, preferably the chloride ion,

$n$  and  $X$  being as defined above, and  $X$  preferably being a hydrogen atom,

the compound of formula (VIII) preferably being cysteamine of formula  $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{SH}$ ,

in order to obtain a compound of formula (I) as defined above and having the following formulae (A-a) or (A-b):



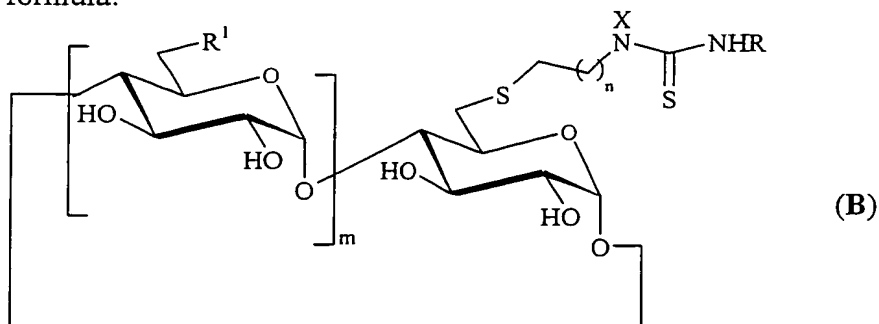
and optionally

– the reaction of the compound of formula (A-a) as obtained in the preceding stage with an isothiocyanate of the following formula (IX):

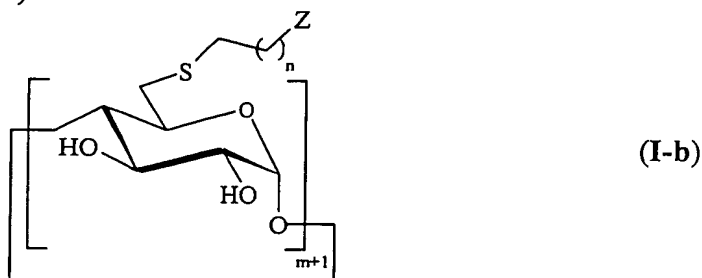


in which R is as defined above,

in order to obtain a compound of formula (I) as defined above, and corresponding to the following formula:

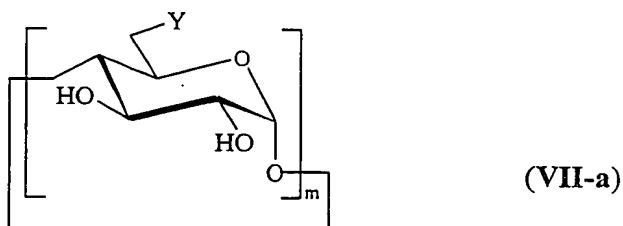


31. (new) The preparation process according to claim 30 of a compound having the following general formula (I-b):



said process being characterized in that it comprises the following stages:

- the reaction of a per(6-deoxy-6-halo) cyclodextrin compound, of the following formula (VII-a):



with an  $\omega$ -aminoalkanethiol of the following formula (VIII):



said  $\omega$ -aminoalkanethiol optionally being N-alkylated,  
or the corresponding salt of the following formula (VIII-a):



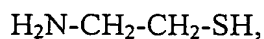
or a tetraalkylammonium salt of the following formula (VIII-b):



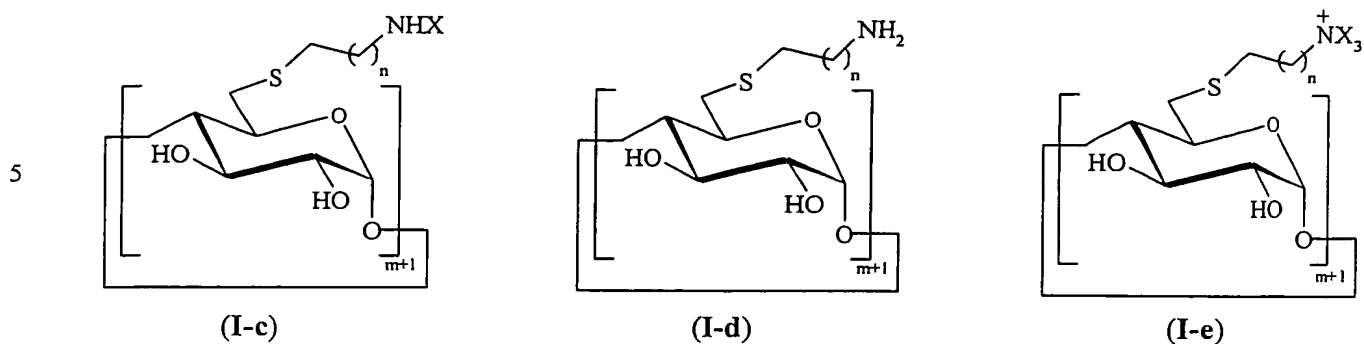
said salt being associated with a halide counter ion, preferably the chloride ion,

and X preferably being a hydrogen atom,

the compound of formula (VIII) preferably being cysteamine of formula



in order to obtain a compound of the following formulae (I-c), (I-d) or (I-e)

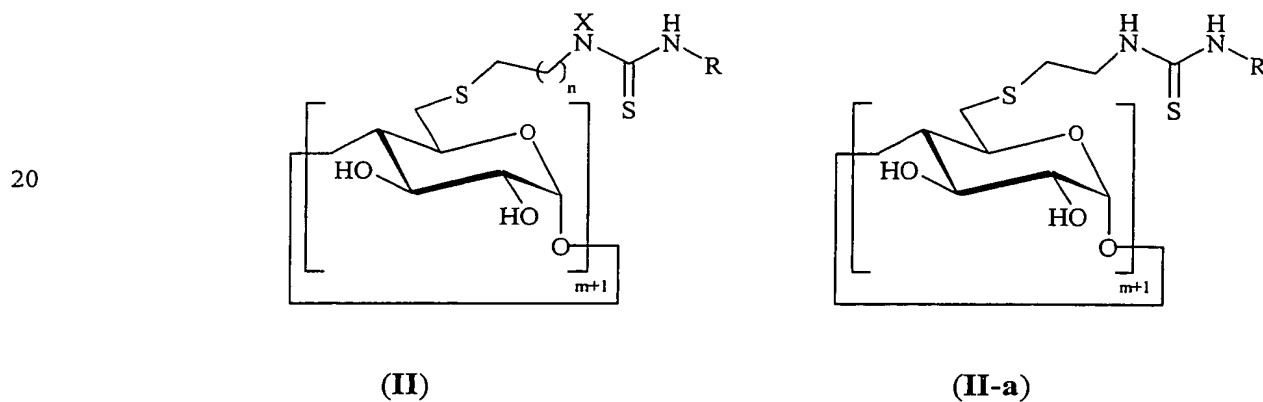


10 and optionally

– the reaction of the compound of formula (I-c) as obtained in the preceding stage with an isothiocyanate of the following formula (IX):

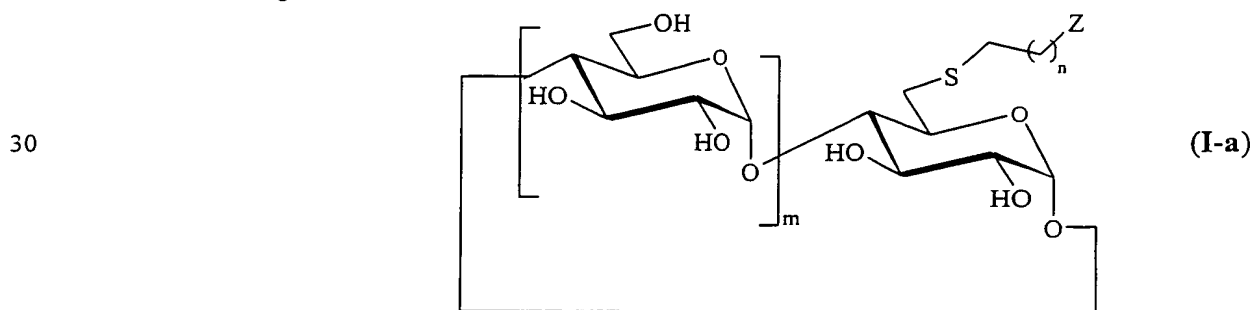


15 in order to obtain a compound of the following formula (II) or (II-a)



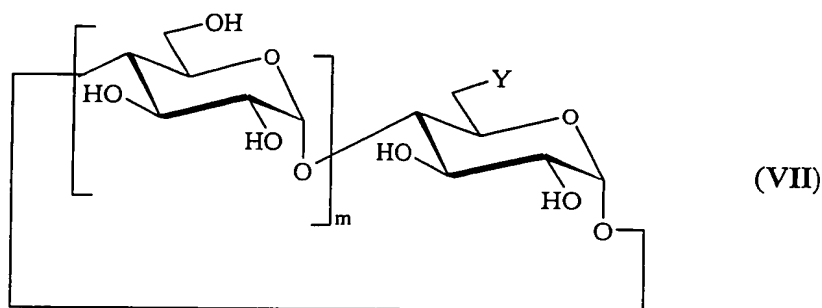
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32. (new) The preparation process according to claim 30 of compounds having the following formula:



said process being characterized in that it comprises the following stages:

- the reaction of a compound selectively halogenated in primary alcohol position, of the following formula (VII):



with an  $\omega$ -aminoalkanethiol of the following formula (VIII):



said  $\omega$ -aminoalkanethiol optionally being N-alkylated,  
or the corresponding salt of the following formula (VIII-a):



or a tetraalkylammonium salt of the following formula (VIII-b):

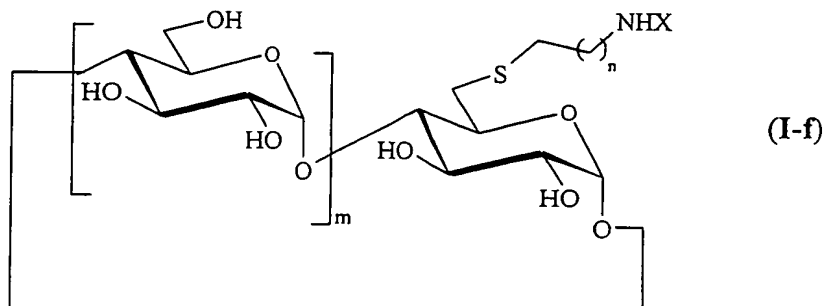


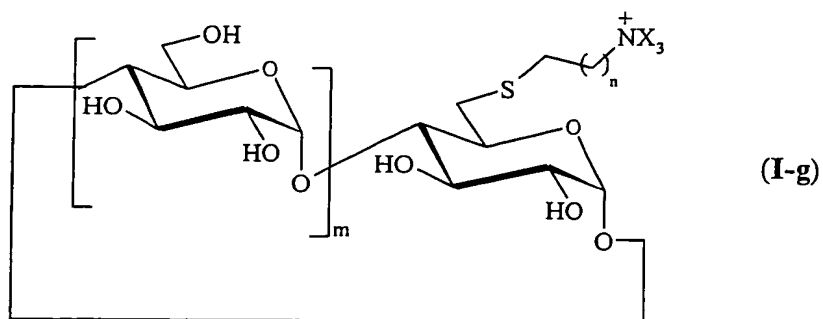
said salt being associated with halide as a counter ion, and preferably being the chloride ion,

and X preferably being a hydrogen atom,

the compound of formula (VIII) preferably being cysteamine of formula  $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{SH}$ ,

in order to obtain a compound of formula (I-f) or (I-g), of the following formula:



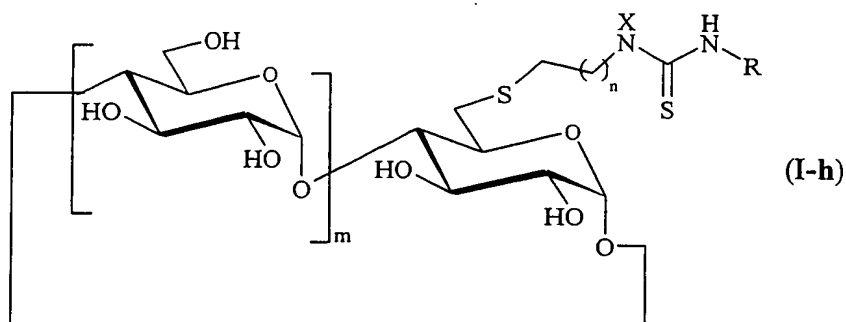


and optionally

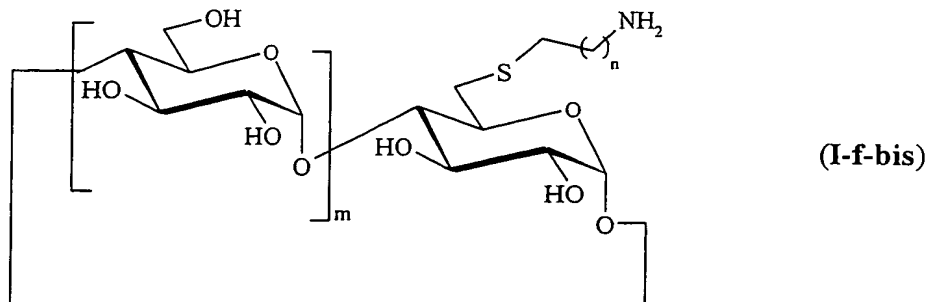
– the reaction of the compound of formula (I-f) as obtained in the preceding stage with an isothiocyanate of the following formula (IX):



in order to obtain a compound of formula (I-h):

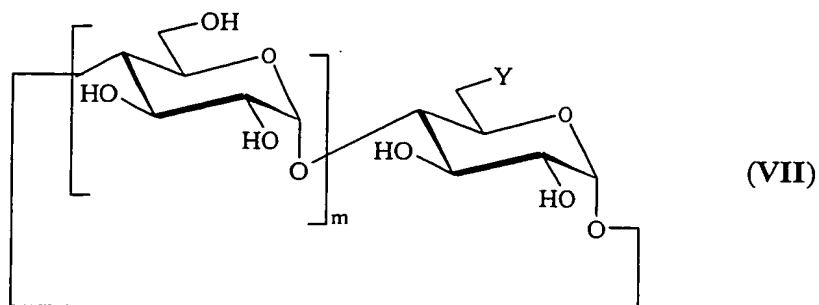


33. (new) A process for the preparation of a compound of formula (I-f-bis)



in which m and n are as defined in claim 30, n preferably being equal to 1,

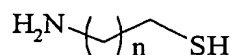
said process being characterized in that it comprises the reaction of a compound selectively halogenated in primary alcohol position, of the following formula (VII):



10  $m$  being as defined above, and

$Y$  representing a halogen atom chosen from the group constituted by chlorine, bromine, iodine, and preferably being bromine or iodine,

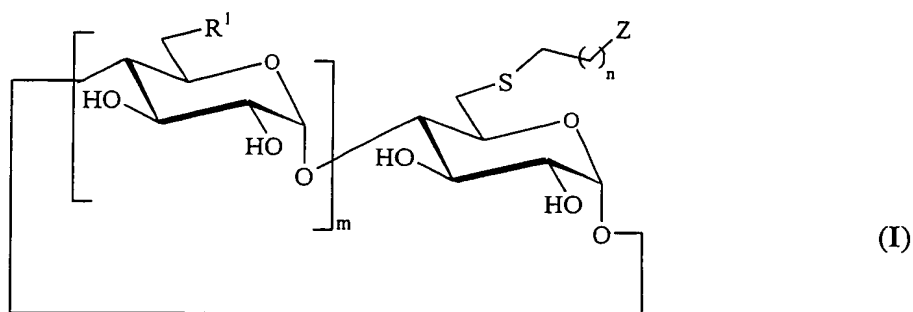
with an  $\omega$ -aminoalkanethiol of the following formula:



15  $n$  being as defined above,

or preferably with cysteamine of formula  $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{SH}$ .

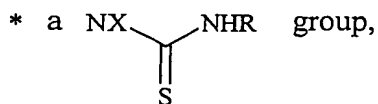
34. (new) A compound of the following general formula:



25 in which:

- $n$  represents an integer from 1 to 6;
  - $m$  represents an integer equal to 5, 6 or 7;
  - $R^1$  represents either an OH group or an  $-\text{S}-\text{CH}_2-(\text{CH}_2)_n-\text{Z}$  group, the  $R^1$  groups all being identical;
  - $Z$  represents either:
    - \* an NHX group,
    - \* a quaternary ammonium group of the  $^+\text{NX}_3$  form,
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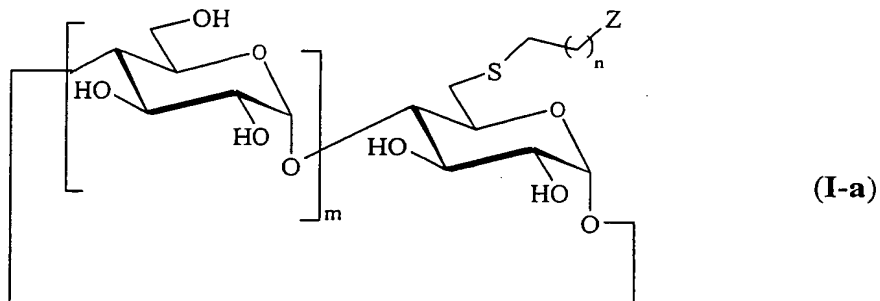
X representing a hydrogen atom or an alkyl group comprising from 1 to 6 carbon atoms, and being in particular a methyl, ethyl, propyl or butyl group, and

R representing a hydrogen atom, a linear or branched alkyl substituent with 1 to 12 carbon atoms, or an aromatic group such as the phenyl, benzyl or naphthyl group, or derivatives of these groups carrying substituents on the aromatic ring such as methyl, ethyl, chlorine, bromine, iodine, nitro, hydroxyl, methoxyl or acetamido substituents,

or R representing a biorecognition element such as an amino acid derivative, a peptide, a monosaccharide, an oligosaccharide, a multiplication element with several branchings comprising glucidic groups which can be identical or different, or a visualization probe or fluorescent or radioactive detection probe,

provided that the compound in which  $n = 1$ ,  $m = 6$ ,  $Z = \text{NH}_2$  and  $R_1 = \text{OH}$  is excluded.

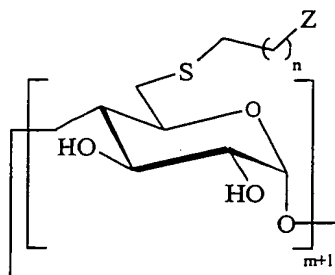
35. (new) The compound of claim 34 characterized in that  $R^1$  represents OH, and having the following general formula:



36. (new) The compound of claim 34 characterized in that  $R^1$  represents OH, having the formula (I-a) and characterized in that Z represents an  $\text{NHX}$  group, X being as defined in claim 5, and in particular being a hydrogen atom.

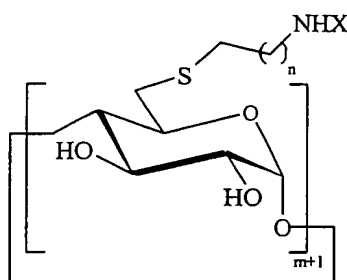
37. (new) The compound of claim 34 characterized in that  $R^1$  represents OH, having the formula (I-a) and characterized in that Z represents a  $\text{NX}-\text{C}(=\text{S})-\text{NHR}$  group, R being

38. (new) The compound of claim 34 characterized in that  $R^1$  represents an  
 5 -S-CH<sub>2</sub>-(CH<sub>2</sub>)<sub>n</sub>-Z group, and having the following general formula:



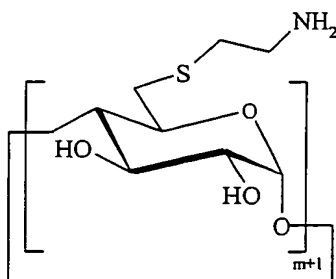
(I-b)

39. (new) The compound of claim 34 characterized in that  $R^1$  represents an -S-CH<sub>2</sub>-  
 15 (CH<sub>2</sub>)<sub>n</sub>-Z group, and having the following formula:



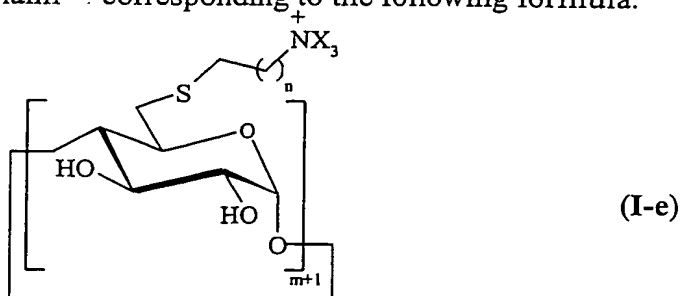
(I-c)

40. (new) The compound of claim 39, characterized in that X represents a hydrogen  
 25 atom and in that n is equal to 1, and having the following formula:

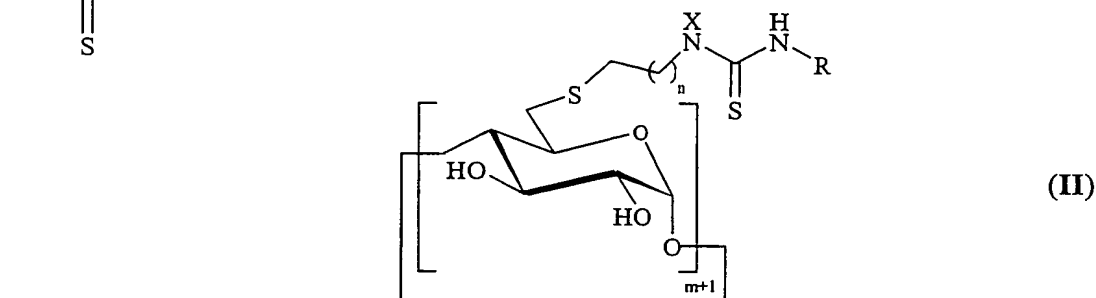


(I-d)

41. (new) The compound of claim<sup>38</sup> corresponding to the following formula:



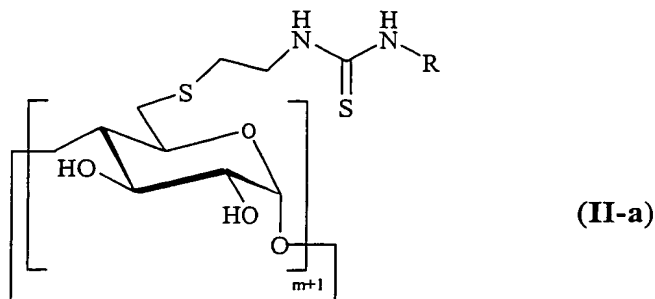
10 42. (new) The compound of claim<sup>38</sup>, characterized in that Z represents a  $\text{NX}-\text{C}(=\text{S})-\text{NHR}$  group, and having the following formula:



R being identical for each  $\text{NX}-\text{C}(=\text{S})-\text{NHR}$  group

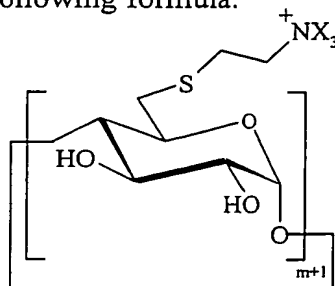
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25 43. (new) The compound of claim 38, characterized in that Z represents a  $\text{NX}-\text{C}(=\text{S})-\text{NHR}$  group, X represents a hydrogen atom and in that n is equal to 1, and having the following formula:



44. (new) The compound of claim 34 characterized in that at least one of the NHX groups as defined in formula (I) is protonated and associated with a monovalent anion chosen in particular from the chloride, bromide or iodide ion.

45. (new) The compound of claim 38, characterized in that  $n$  is equal to 1 and in that the  $Z$  group represents the quaternary ammonium  $^+NX_3$  group, and in that it can be associated with a monovalent anion chosen in particular from the chloride, bromide or iodide ion, and having the following formula:

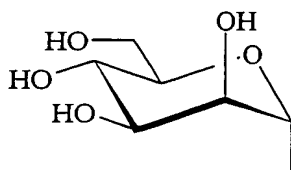


(I-e-bis)

46. (new) The compound of claim 34 characterized in that  $R^1$  represents an  $-S-CH_2-(CH_2)_n-Z$  group, wherein  $Z$  represents a  $NX-C(=S)NHR$  group,  $X$  represents a

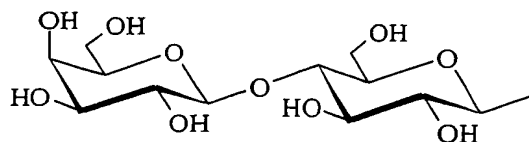
hydrogen atom,  $n$  is equal to 1, and the  $R$  group is chosen from the following groups:

- the  $\alpha$ -D-mannopyranosyl group, of the following formula (III):



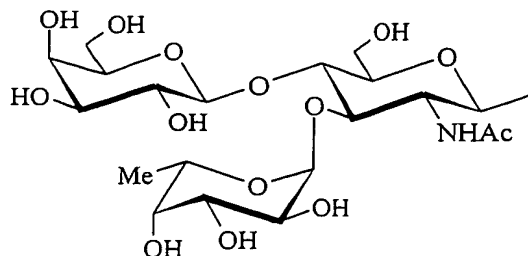
(III)

- the  $\beta$ -lactosyl group, of the following formula (III-a):

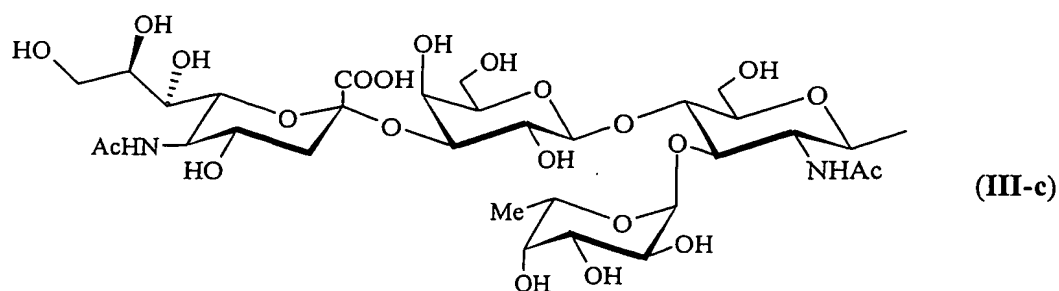


(III-a)

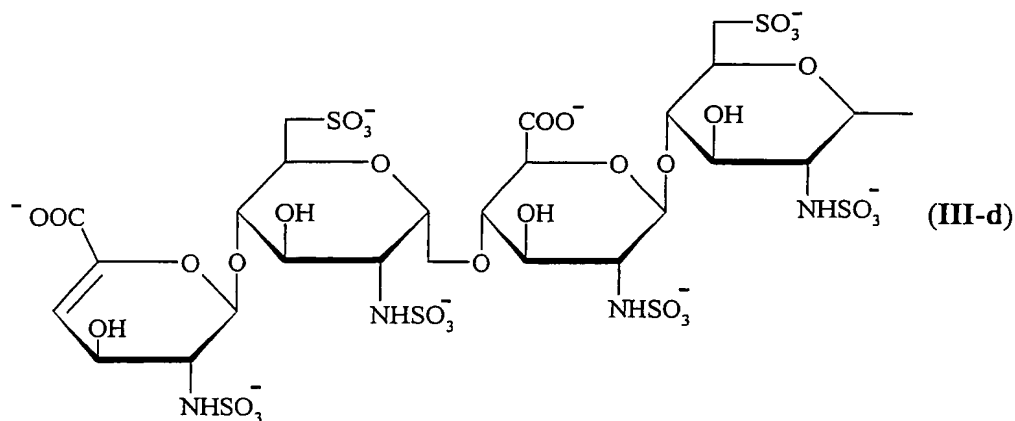
– the group derived from Lewis X trisaccharide or from sialyl Lewis X tetrasaccharide, of the following formulae (III-b) and (III-c) respectively:



(III-b)



– an oligosaccharide derived from heparin, of the following formula (III-d):

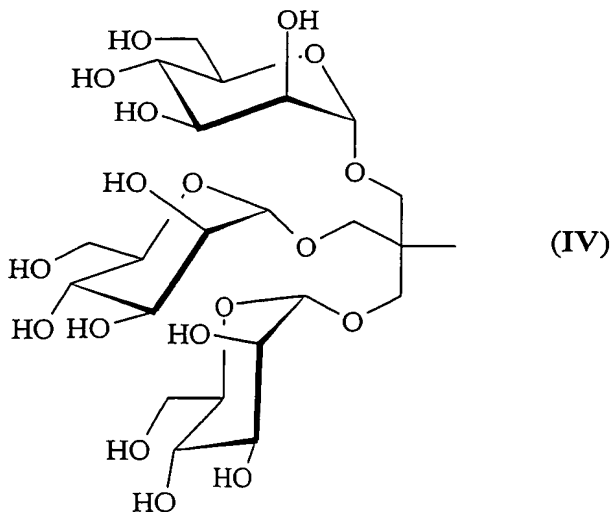


47. (new) The compound of claim 34, characterized in that  $R^1$  represents an  $-S-CH_2-(CH_2)_n-Z$  group, wherein Z represents a  $NX-C(=S)NHR$  group, X represents a hydrogen atom, n is equal to 1, and:

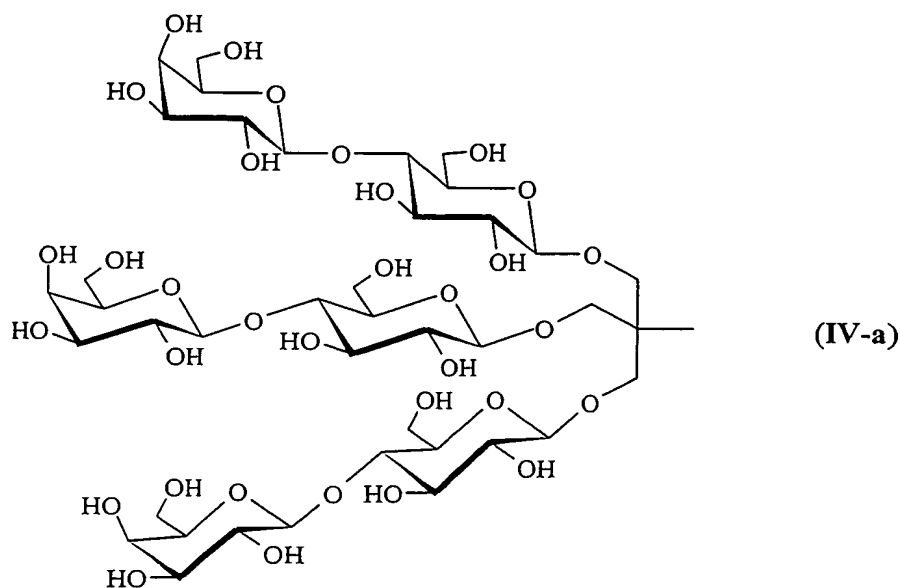
R comprises a branching element derived from tris(2-hydroxymethyl)methylamine, or

R represents one of the following groups:

– the tris( $\alpha$ -D-mannopyranosyloxymethyl)methyl group, of the following formula (IV):

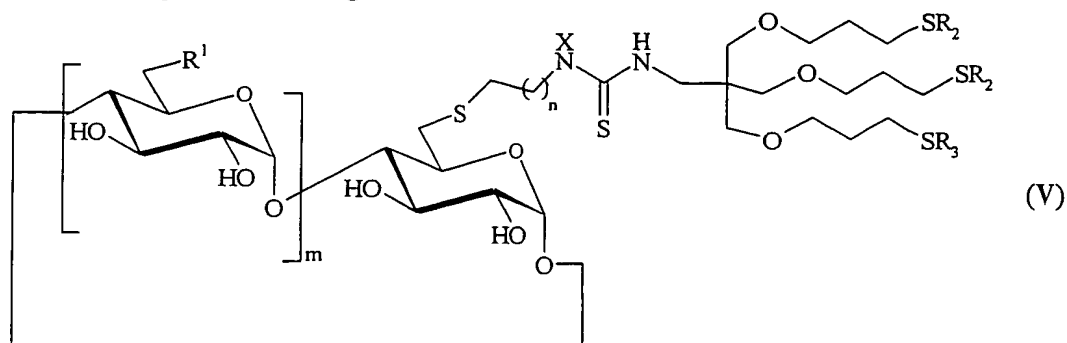


– the tris( $\beta$ -lactosyloxymethyl)methyl group, of the following formula (IV-a):



48. (new) The compound of claim 34 wherein Z represents a  $\text{NX}-\text{C}(=\text{S})-\text{NHR}$  group,

characterized in that R comprises a branching element derived from pentaerythritol, said compound having the following formula:

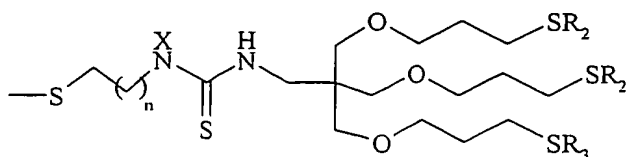


in which .

$\text{R}^2$  and  $\text{R}^3$  represent glucidic derivatives which can be different or identical or also a fluorescent or radioactive probe.

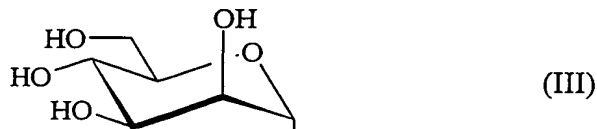
49. (new) The compound of claim 48, characterized in that  $\text{R}^1$  represents OH.

50. (new) The compound of claim 48, characterized in that  $\text{R}^1$  represents the group of formula:

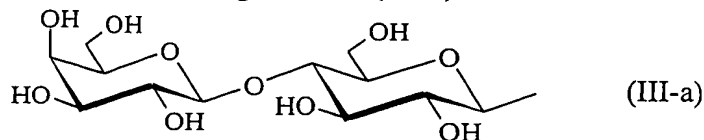


51. (new) The compound of claim 48 characterized in that  $n$  is equal to 1, in that  $X$  represents a hydrogen atom and in that  $R^2$  and  $R^3$  represent one of the following groups:

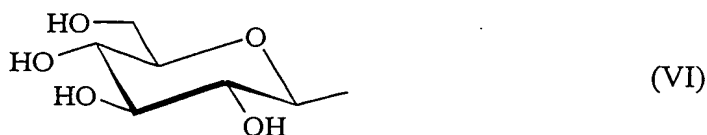
- the  $\alpha$ -D-mannopyranosyl group, of the following formula (III):



- the  $\beta$ -lactosyl group, of the following formula (III-a):



- the  $\beta$ -D-glucopyranosyl group, of the following formula (VI):



$R^2$  and  $R^3$  being able to be identical or different.

52. (new) The compound of claim 34 characterized in that  $m$  is equal to 6.

20 53. (new) An inclusion complex of a compound according to claim 34 with a pharmacologically active molecule, the molar ratio between the compound according to claim 5 and the pharmacologically active molecule advantageously being approximately 50:1 to approximately 1:1.

25 54. (new) An inclusion complex of a compound according to claim 34 with a pharmacologically active molecule, the molar ratio between the compound according to claim 5 and the pharmacologically active molecule advantageously being approximately 50:1 to approximately 1:1, said complex being characterized in that the pharmacologically active molecule is an antineoplastic agent, in particular belonging to the taxol family.

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55. (new) A pharmaceutical composition comprising a compound according to claim 34 with a pharmacologically acceptable vehicle.

56. (new) A pharmaceutical composition comprising an inclusion complex of a compound according to claim<sup>34</sup>, with a pharmacologically active molecule, the molar ratio between the compound and the pharmacologically active molecule advantageously being approximately 50:1 to approximately 1:1, in association with a pharmacologically acceptable vehicle.

57. (new) A pharmaceutical composition comprising a compound according to claim 34 with a pharmacologically acceptable vehicle, in the form of an aqueous solution.

58. (new) A pharmaceutical composition comprising an inclusion complex of a compound according to claim<sup>34</sup> with a pharmacologically active molecule, the molar ratio between the compound and the pharmacologically active molecule advantageously being approximately 50:1 to approximately 1:1, in association with a pharmacologically acceptable vehicle, said pharmaceutical composition being in the form of an aqueous solution.

59. (new) A pharmaceutical composition comprising a compound according to claim 34 with a pharmacologically acceptable vehicle, characterized in that it contains per single dose approximately 50 mg to approximately 500 mg of one of the compounds.

60. (new) A pharmaceutical composition comprising an inclusion complex of a compound according to claim<sup>34</sup> with a pharmacologically active molecule, the molar ratio between the compound and the pharmacologically active molecule advantageously being approximately 50:1 to approximately 1:1, in association with a pharmacologically acceptable vehicle, characterized in that it contains per single dose approximately 100 mg to approximately 750 mg of one of said complex.